

CLAIMS

I claim:

1. A process for producing a resin suitable for use as utility conduit comprising polymerizing ethylene or copolymerizing ethylene and an alpha-olefin comonomer comprising 3 to 10 carbon atoms, in the presence of a chromium and titanium-based catalyst activated by:

(a) contacting said catalyst in a reactor at a temperature of between about 370-540°C (700-1000°F) with an atmosphere consisting essentially of an inert gas; and then

(b) introducing an oxidant into said reactor so that the temperature of said reactor does not exceed about 510°C (950°F); and then

(c) completing the activation of said catalyst in a reactor at a temperature of about 605-695°C (1120-1280°F) under an oxidizing atmosphere.

2. The process according to Claim 1, wherein the temperature of said reactor in (a) does not exceed about 450°C (850°F).

3. The process according to Claim 1, wherein the temperature of said reactor in (b) does not exceed about 450°C (850°F).

4. The process according to Claim 1, wherein the temperature of said reactor in (a) does not exceed about 400°C (750°F) and the temperature of said reactor in (b) does not exceed about 425°C (800°F).

5. The process according to Claim 1, wherein (c) further comprises completing the activation at said temperature and under said oxidizing atmosphere for a period of from 1 minute to 10 hours.

6. The process according to Claim 5, wherein said period in (c) is from 4 to 7 hours.

7. The process according to Claim 1, wherein said oxidizing atmosphere in (c) is an atmosphere consisting essentially of air.

5 8. The process according to Claim 5, wherein said oxidizing atmosphere in (c) is an atmosphere consisting essentially of air.

9. The process according to Claim 6, wherein said oxidizing atmosphere in (c) is an atmosphere consisting essentially of air.

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10. The process according to Claim 1, wherein said resin has a density of about 0.942-0.952 g/cm³ (ASTM D-4883), a range of MI₂ of 0.15-0.45 g/10 min (ASTM D-1238), and ESCR >96 hours (ASTM D-1693, Condition B, F20, 10% Igepal).

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11. A resin suitable for use as utility conduit, further characterized as comprising the residue of a chromium and titanium-based catalyst activated by:

(a) contacting said catalyst in a reactor at a temperature of between about 370-540°C (700-1000°F) with an atmosphere consisting essentially of an inert gas; and then

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(b) introducing an oxidant into said reactor so that the temperature of said reactor does not exceed about 510°C (950°F); and then

(c) completing the activation of said catalyst in a reactor at a temperature of about 605-695°C (1120-1280°F) under an oxidizing atmosphere.

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12. The resin according to claim 11, said resin having a density of about 0.942-0.952 g/cm³ (ASTM D-4883), a range of MI₂ of 0.15-0.45 g/10 min (ASTM D-1238), and ESCR >96 hours (ASTM D-1693, Condition B, F20, 10% Igepal).

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13. An article made by extruding the composition according to Claim 11, said article having a hollow core.

14. The article according to Claim 13, wherein said article comprises a resin having a density of about 0.942-0.952 g/cm³ (ASTM D-4883), a range of MI₂ of 0.15-0.45 g/10 min (ASTM D-1238), and ESCR >96 hours (ASTM D-1693, Condition B, F20, 10% Igepal).

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15. The article according to Claim 13 further comprising a utility carrying electromagnetic energy within said hollow core.